

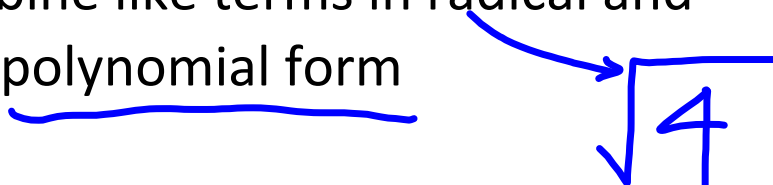
Adding and Subtracting Terms

N.RN.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents. (i.e., simplify and/or use the operations of addition, subtraction, and multiplication, with radicals within expressions limited to square roots).

A.APR.1 Add, subtract, and multiply polynomials; understand that polynomials form a system analogous to the integers in that they are closed under these operations.

What am I learning today?

How to combine like terms in radical and polynomial form



How will I show that I learned it?

Simplify an expression and explain why my final answer cannot be further simplified

Vocabulary:

Polynomial - An expression of algebraic terms, especially the sum of several terms that contain different powers of the same variable. (Ex: $5x^3$ - $2x^2$ + 7)

$5y^2$ - 1 term Monomial

$x^2 - 5$ - 2 terms Binomial

$5x^3 - 2x^2 + 7$ - 3 terms Trinomial

For all addition and subtraction
problems we use CLT!
(Combining Like Terms)

Match the like terms

$$3x^2$$
$$-7x^2$$

$$12xy$$
$$6.2xy$$

$$5\sqrt{2}$$
$$3\sqrt{2}$$

$$x^2\sqrt{x}$$
$$-4x^2\sqrt{x}$$

When combining like terms, we add or subtract the coefficients only.

Ex. 1 $5x + 7x^2 - 3x + 4$

$$7x^2 + 2x + 4$$

Standard
Form

S.F.
highest
power to
lowest

Ex. 2 $6x^2 - 4x - 3x + 2 - 6x^2$

$$-7x + 2$$

Ex. 3 $(5x^2 + 4x) + (3 - 7x)$

$5x^2 + 4x + 3 - 7x$

$5x^2 - 3x + 3$

Ex. 4 $(4x^3 - 2x^2 + 5) + (3x^3 - 8x^2 - 3)$

The diagram shows the addition of two polynomials: $4x^3 - 2x^2 + 5$ and $3x^3 - 8x^2 - 3$. The terms are color-coded: $4x^3$ and $3x^3$ are in yellow; $-2x^2$ and $-8x^2$ are in cyan; 5 and -3 are in green. A red bracket above the terms connects $4x^3$ to $3x^3$, $-2x^2$ to $-8x^2$, and 5 to -3 . A blue bracket below the terms connects $4x^3$ to $3x^3$. A green bracket below the terms connects $-2x^2$ to $-8x^2$. A red box below the terms contains the result: $7x^3 - 10x^2 + 2$.

$$4x^3 - 2x^2 + 5 + 3x^3 - 8x^2 - 3$$
$$7x^3 - 10x^2 + 2$$

When subtracting polynomials, we apply the subtraction to all parts of the polynomial.

Ex. 1 $(5x + 7x^2) - (3x + 4)$

$$\textcircled{5x} + \cancel{7x^2} - \textcircled{3x} - \underline{4}$$

$$7x^2 + 2x - 4$$

Ex. 2 $(6x^2 - 4x) - (-5x + 2 - 3x^2)$

$$\textcircled{6x^2} - 4x + 5x - 2 + \textcircled{3x^2}$$

$$9x^2 + x - 2$$

Mixed Practice!

$$A) (3x^2 - 4x + 2) + (2x - 5x^2 + 6) = -2x^2 - 2x + 8$$

$$B) (2x^3 + 5x - 2) + (-2x + 3x^3 + 2) = 5x^3 + 3x$$

$$C) (-2x^2 + 7x - 12) + (20 + 4x^2) = 2x^2 + 7x - 32$$

$$D) (8x^3 - 4x) + (3x^2 - 9x + 7) = 8x^3 + 3x^2 - 13x + 7$$